

## CLAIMS

- 1 1. A mass flowmeter for flowing media which works on the Coriolis principle com-  
2 prising,  
3 at least one straight measuring tube conveying the flowing medium,  
4 at least one oscillation generator acting on the measuring tube,  
5 at least one measurement value sensor detecting Coriolis forces and/or Coriolis  
6 oscillations based on Coriolis forces and outputting a measurement signal,  
7 a supporting tube accommodating the measuring tube, the oscillation generator  
8 and the at least one measurement value sensor,  
9 at least one first stress sensor for detecting the stress state of the measuring tube,  
10 a correction device for correcting the measurement signal, the at least one meas-  
11 uring tube and the supporting tube being connected to one another at spaced-apart fixing  
12 points in a manner excluding relative axial movements and the axial spacing of said fix-  
13 ing points representing the oscillation length of the measuring tube, and the at least one  
14 measurement value sensor and the at least one first stress sensor being connected to the  
15 correction device, in order to feed to the correction device the measurement signal and  
16 the stress signal outputted by the at least one first stress sensor,  
17 at least one second stress sensor detecting the stress state of the supporting tube,  
18 said at least one second stress sensor being connected to the correction device in order to  
19 feed to the correction device the stress signal outputted by the at least one second stress  
20 sensor, so that a measurement signal can be outputted from the correction device that is  
21 corrected on the basis of the stress signal outputted by the at least one first stress sensor  
22 and the stress signal outputted by the at least one second stress sensor.
- 1 2. The mass flowmeter according to claim 1, wherein the connection device includes  
2 means for providing an empirically determined correction function for determining the  
3 corrected measurement signal.

1 3. The mass flowmeter according to claim 1 or 2, wherein said at least one first and  
2 second stress sensors comprise length-change sensors, in particular wire strain gages.

1 4. The mass flowmeter according to any one of claims 1 to 3, wherein said at least  
2 one first stress sensor is orientated in the longitudinal direction of the measuring tube  
3 and/or the at least one second stress sensor is orientated in the longitudinal direction of  
4 the supporting tube.

1 5. A method for correcting the measurement signal of a mass flowmeter for flowing  
2 media of the type which works on the Coriolis principle and has at least one straight  
3 measuring tube conveying the flowing medium, at least one oscillation generator acting  
4 on the measuring tube, at least one measurement value sensor detecting Coriolis forces  
5 and/or Coriolis oscillations based on Coriolis forces and outputting a measurement signal  
6 and a supporting tube accommodating the measuring tube, the oscillation generator and  
7 the measurement value sensor, whereby the measuring tube and the supporting tube are  
8 connected to one another in a manner excluding relative axial movements and the axial  
9 spacing of the fixing points of the supporting tube on the measuring tube represents the  
10 oscillation length of the measuring tube, said method comprising the steps of  
11 detecting the stress state of the measuring tube,  
12 detecting the stress state of the supporting tube, and  
13 correcting the measurement signal on the basis of the detected stress state of the  
14 measuring tube and the detected stress state of the supporting tube.

1 6. The method according to claim 5, wherein the correcting steps correct the meas-  
2 urement signal on the basis of an empirically determined correction function.

1 7. The method according to claim 5 or 6, wherein the detecting steps detect the  
2 length changes of the measuring tube and the supporting tube, respectively.